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[Back to Article](#)**Glasses That Maxwell Smart Would Love...**By [boston.internet.com Staff](#)

July 18, 2000

Two Massachusetts firms have combined to create a little something sure to impress colleagues at the water cooler: video devices that attach to eyeglasses and project computer images inches in front of your face.

Focus Enhancements Inc. (FCSE) of Wilmington makes electronic chips that normally are used to convert video images and make them suitable for viewing either on computers or televisions.

Focus sells its chips to computer, television and set-top box makers, who install them to allow the differing video formats of computers and televisions to be integrated and visible on all devices.

Now that chip technology has been picked up by MicroOptical Corp. of Westwood for a very different purpose.

Among other products, MicroOptical is developing electronic displays that can be mounted on eyeglass frames. The one-ounce package consists of a tiny liquid crystal display (LCD) hooked to a bendable stalk attaching to the temple area of the frames. The device receives signals (through a wired or, eventually, wireless hookup) from computers, TVs or VCRs, and generates images that are reflected through the eyeglass lens.

The special lenses include reflectors that magnify the LCD image, allowing it to be viewed by the eye millimeters away. The wearer perceives an image floating in space at an adjustable distance of two or three feet, as if a computer screen were hovering in front of the user's face.

The deal with Focus allows MicroOptical's product to link with computer outputs of varying resolutions and color arrays and still create a visible image.

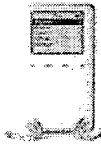
The clip-on devices are available for "limited" sale to "qualified manufacturers." Meanwhile, MicroOptical is also developing "integrated" devices in which the electronic display is concealed rather than bent in front of one of the eyeglass lenses. These display devices also can be switched on and off and include a focus adjustment to move the image to a comfortable distance.

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7/22/04

In either case, if the display is switched off, the glasses operate normally, either with corrective lenses or without. The firm, which has applied for six patents, says the fact that its hardware can be concealed within the glasses -- electronic chips in the frames, optical devices in the lenses -- makes its technology unique.

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The applications? MicroOptical's website says the system "can be used in a variety of commercial, medical and military applications." That last adjective is of special note -- the U.S. Army has contributed funding for product development, along with private and company investors.

Surgery is one area in which the glasses could be used, as doctors in a distant location could key in data that could be made visible to a doctor bent over the operating table. How the display could be switched on and off while the user's hands are occupied remains unclear.

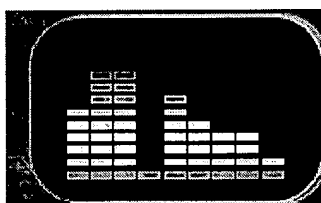
Perhaps we're not far from the day when they'll just be a nifty way to compute and communicate without a monitor the size of a laptop's. MicroOptical says the glasses "provide...a convenient, portable means of carrying a display that can be connected to a notebook computer, wearable computer or other electronic device."

Virtual reality? While "the glasses are not intended to provide an immersive environment," MicroOptics says, they are "well suited to augmented reality." What exactly "augmented reality" is may depend on the wearer and what the wearer has recently ingested.

If applied to both lenses of the eyeglasses, the technology can form a three-dimensional image. MicroOptics says it is not working on so-called "stereo glasses" but says it may do so down the road.

As Focus Vice President Bill Schillhammer put it, "The future of head-up display systems and wearable computing is a reality now."

And here we'd thought the only water coolers privvy to such gadgetry were at the MIT Media Lab.



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